

UNIVERSITY OF MINNESOTA

Medical Bulletin

Official Publication of

UNIVERSITY OF MINNESOTA HOSPITALS
MINNESOTA MEDICAL FOUNDATION
MINNESOTA MEDICAL ALUMNI ASSOCIATION

Circulation this issue: 6,300

VOLUME XXXVIII

May 1967

NUMBER 9

CONTENTS

ALUMNI SURVEY

The Class of 1936 258

STAFF MEETING REPORTS

Medicine's Primary Data and the Primary Physician
RICHARD M. MAGRAW, M.D. 272

Cytodifferentiation in Embryonic Liver
RICHARD L. WOOD, Ph.D. 275

*Effect of Oxygen Tension on the Metabolism
of Hexobarbital in the Rat*
JAMES F. CUMMING, M.D. 277

MEDICAL SCHOOL NEWS 279

ALUMNI NOTES 282

Published monthly from September through June at Minneapolis, Minn. No advertising accepted. Second class postage paid at Minneapolis, Minn. Address all correspondence to The Editor, University of Minnesota Medical Bulletin, 1342 Mayo Bldg., University of Minnesota, Minneapolis, Minn. 55455.



Alumni Survey



The Class of 1936

Ninety five of the 113 members of the Class of 1936 responded to the MEDICAL BULLETIN's survey, results of which appear on the following pages, and the editors succeeded in locating virtually all of those living. The Medical School should be pleasantly surprised with the enthusiastic interest of a 30-year class.

With the class generally at career zenith, the editors posed two special questions: (1) What do you remember most about Medical School days, and (2) What are your thoughts on Medicine and practice after 30 years?

Some of the more interesting answers: ". . . the thrill of seeing our first patients . . . Scrounging for money to stay in school . . . The cold in Minneapolis . . . Are we to become Civil servants? . . . Would choose no other profession . . . The 'horrible' Comprehensive Exams . . . Couldn't justify urging my son to study medicine today . . . Am discouraged by 'drift to the left.' . . . No psychology included in the 'ridiculously unbalanced' curriculum . . . Minnesota's football teams . . . The great faculty . . . Would do it again exactly the same . . . The 'Great White Father' soon to wreck Medicine . . . Graduation from Minnesota carries great respect around the country . . . I take the Fifth . . . Still wake up screaming at thought of the Comprehensives . . . Nu Sigma Nu parties . . . Prohibition, homebrew, Papa Bell, and good friends . . . C. M. Johnson, Henry Michelson, Moses Barron, and J. C. Litzenberg . . . Have no regrets . . . A definite place in the future for the family physician."

George N. Aagaard* is professor of medicine at the University of Washington. He was once at the U. of M., and former dean of Southwestern Medical School as well as the University of Washington Medical School. He now lives at 3810 49th Ave. N. E., Seattle, with his wife Lorna. George is remembered from undergraduate days as the "finest drum major the University ever had."

Almer R. Aanes is retired and lives in Tucson, Ariz. after 24 years spent in general practice in Ellsworth, Wis. He is grandfather of five and such activities as travel, photography, and fishing "keep me active and in good health."

Herbert B. Allen practices general medicine in New York City. Herb spent two periods in the Army, and now lives at 360 West 22nd Street, Apt. 80, New York 10011.

David J. Almas* has been a general surgeon with the Havre, Mont. Clinic for 20 years. His five children include a son in U. of M. law school, and the youngest in 5th grade. He writes, "We have lived thru 'good age', now the government is taking over!"

Robert R. Ambrose has been in solo general practice for 28 years in Bound Brook, N. J. He comments, "Were I able to start my life over again, I would choose no other profession than medicine."

Karl d'A. Andresen* is in solo internal medicine practice in Minneapolis, where he has spent his entire medical career. He writes, "We are very proud of our two oldest daughters who were Phi Beta Kappas. Still have twin daughters, age 16, at home, 4332 Mackey Ave."

Francis W. Bachnik* has practiced OB-GYN for 12 years in St. Petersburg, Fla. He and his wife, Dorothy, live at 628 64th St. No., and like to vacation in northern Minnesota.

Helen Bane Longfellow* has been in solo general practice for 22 years in Brainerd, Minn. Her husband is a judge and they have four children. They live at 517 N. 5th St.

Carroll J. Bellis has practiced general surgery alone for 22 years in Long Beach, Calif. He was a consultant in surgery to the Army's Surgeon General for four years, and remembers "the incisive thinking of Dr. Wangenstein" best about Medical School days.

Paul C. Benton* has practiced child psychiatry for 15 years in Tulsa, Okla., and is an associate professor at the University of Oklahoma. He writes, "I spent ten years helping develop

*Member, Minnesota Medical Foundation

Tulsa Medical Center into an accredited hospital and psychiatric training center, then retired to private practice."

Lawrence Berman's address is 1401 Rivard Street, Detroit, Mich.

H. M. Blegen is deceased.

T. J. Bloedel* has been in general practice for 23 years at the Osseo, Minn. Clinic. His son, Jim, will receive his Ph.D. in neuro-physiology and his M.D. degree from the U. of M. this year. He enjoys golf, music and his family in his free time, and remembers "the members of a wonderful class and a respected faculty" from Medical School days.

Thomas A. Bond is an anesthesiologist with an 11-man anesthesiology group in Des Moines, Ia. He writes, "Now that my three daughters are educated, my wife and I are doing more traveling." They live at 620 Polk Blvd.

J. A. Boraas is deceased.

Col. John E. Boysen served 23 years in the Air Force, is now retired and is now director of medical services for T.W.A. at Kennedy Space Center, Fla. One of his sons is in pre-med at the U. of Fla.

Donald M. Brink has had an eye practice for 20 years in Hutchinson, Minn., and consults for the St. Peter State Hospital. He and his wife, Margaret, an R.N., have three children. Don writes, "Medicine is a most rewarding profession and I would strongly recommend it to anyone who has an altruistic identification."

Wilfred J. Bushard* spent 23 years in ophthalmology practice. The last ten months have been as part time ophthalmologist at the V. A. Hospital in Phoenix, Ariz. Will writes that he has seven children and enjoys bridge and flower growing and "hopes to recover my health in the Valley of the Sun."

John K. Butler's address is 1214½ Cloquet Ave., Cloquet, Minn.

R. V. Butler is deceased.

B. J. Canfield is deceased.

Walter A. Carley is deceased.

Francis G. Chermak* has been in general practice for 28 years in International Falls, Minn. He lives at 520 5th St.

Lyman B. Clay has been a surgeon since 1952, after 15 years as a GP. Lyman has a married son and daughter and enjoys philately, geology and rock collecting.

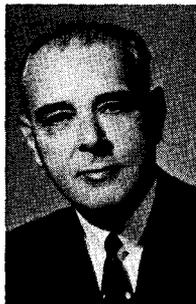
*Member, Minnesota Medical Foundation



T. J. Bloedel



Donald M. Brink



Harry A. Cumming

Ray F. Cochrane is in OB-GYN in Minneapolis at the Nicolet Clinic and teaches at the Medical School. He remembers being able to "park a Model T" during Medical School days and comments that his practice has been "worth every minute of it."

George M. Cowan has been a psychiatrist for 27 years. A son, Gary, is a 1962 graduate of the U. of M. Medical School and currently a resident in psychiatry. George lives in Duluth, Minn. and plays violin with the Duluth Symphony and Doctor's Orchestra. He writes, "Can't think of anything else I'd rather be doing."

Ray C. Creelman is in general practice with a special interest in OB-GYN at the Schutt Clinic in Bremerton, Wash. He writes that he's spent 28 years in his hometown "with the third generation of deliveries coming up!" Ray lives at 2101 Ford Ave.

Harry A. Cumming has been in solo dermatology practice for 13 years in Scottsdale, Ariz. He has two sons and a daughter and enjoys fishing, traveling and youth work.

John L. Delmore, Jr.* has been in general practice since 1937 at the Delmore Clinic Medical Group with two associates in Roseau, Minn. John won the Army Bronze Star in 1945. He has six children and enjoys amateur radio and fishing. Of medical practice today he writes: "Too damn much paper work! Good health, longevity and best wishes to classmates of 1936."

Donald C. Deters* is full time on the U. of M. Health Service staff. He and his wife, Dorothy, live at 1486 Edgumbe Rd. in St. Paul. Don enjoys golf.

J. L. Deuterman is deceased.

Roy E. Dow is at the Wayne County General Hospital, Eloise, Mich.

*Member, Minnesota Medical Foundation

Raymond W. Dowidat has been a staff physician with the V. A. Hospital in Saginaw, Mich. for 14 years. He credits the late Dr. Hal Downey for "stimulating my lasting interest in hematology."

Fred A. Ellis is medical director of the Pacific Car and Foundry Co. in Renton, Wash. He and his wife, Helen, adopted two children in Germany in 1956, a boy and girl, now 15 and 10 years of age.

Oscar E. Enroth has been a GP for 30 years in St. Paul. He likes golf, fishing and hunting and lives with his wife Laura, at White Bear Lake.

Ralph E. Erickson's address is 34 Black Log Rd., Kentfield, Calif.

Charles A. Evans has been professor and head of microbiology at the University of Washington, Seattle, for 21 years. "During my internship," he writes, "I decided to try bacteriology for the rest of that year and I've been 'doing what comes naturally' ever since.

Sherman P. Faunce is an internist in Detroit, Mich. He has one son who is an attorney, two grandchildren, and lives at 1824 Seminole Ave.

Henry Fisketti practices general medicine and surgery alone in Duluth, Minn., where he has been since 1939. He has three children and hopes "to retire before I expire!" Henry comments that he would choose a "group practice with its many advantages" the next time around but "there's nothing like medicine and I would certainly stay in that field."

Dean S. Fleming has been with the Minnesota Department of Health since 1939, and teaches at the School of Public Health in the Medical School. He has three sons and believes medicine is "still No. 1 for a life goal."

Fermon L. Foster has been in general practice for 30 years, the last 15 at the Foster Clinic in Minden, La. He spent 10 years in the service and is planning to retire this year.

Leonard C. Frank practices psychiatry in Great Neck, N.Y., and lives at 626 Colonade Rd. W., Hempstead.

M. L. Fredlund is deceased.

George Friedell* has "loved general practice" since 1938, and is now located in St. Louis Park, Minn. A daughter, Beverly graduates with the Medical School's Class of 1967. George notes the changing scene in medicine: "A lot of progress was made in these few years, more on the way."

*Member, Minnesota Medical Foundation

Morris T. Friedell* has been a surgeon for 25 years in Chicago and is affiliated with several Chicago medical institutions, with offices at 7531 Stony Island Ave. He has four children; a son, Peter, is a sophomore at Chicago Medical School.

Phillip H. Gates* practices adult and child psychiatry and psychoanalysis in Cambridge, Mass., where he has been for 21 years. He also teaches at the Harvard Medical School and is director of training at the J. J. Putnam Children's Center in Boston.

Amos R. Gilsdorf* has practiced general surgery at the Dickinson, N. D. Clinic since 1937, with time out for military duty and post graduate studies. He is past president of the No. Dak. State Medical Association and is currently treasurer of No. Dak. Blue Shield. He writes, "Medicine is becoming more scientific and efficient with an accompanying diminished art. Government intervention is disturbing, but I would never want to be any thing other than an M.D."

Leslie R. Grams* is at O'Connor Hospital, San Jose, Calif.

George J. Halladay's* address is 2039 Harris St., Eugene, Ore.

Harry P. Harper* practices surgery with a four-man group in Spokane, Wash., and consults at the U. of Washington. Harry writes that he intends to retire within the next five years. He is active in the Air National Guard.

Evelyn Smith Harris* practices pediatrics and pediatric cardiology with Group Health of Puget Sound, Wash. She grows



Morris T. Friedell



Evelyn S. Harris



William E. Harris

orchids, raises Siamese cats, and remembers all the "marvelous and inspiring teachers who gave me a superb background (as much as I resisted it)."

*Member, Minnesota Medical Foundation

William E. Harris* is with the five-man Livingston, Mont. Clinic. Bill has six children; a son, Stanley, is a sophomore at the U. of Washington School of Medicine. He says: "Medicine has advanced beyond my wildest dreams and I enjoy my practice better than ever except for the paper work!"

Grant F. Hartnagel* has practiced OB-GYN for 21 years and is affiliated with the Interstate Clinic in Red Wing, Minn. His wife, Elizabeth, is a 1932 graduate of the U. of M. School of Nursing.

Hugh W. Hawn has practiced ophthalmology for 27 years in Fargo, N. Dak. He writes, "I'm well satisfied with location and specialty—wouldn't make any changes if I were to do it all over again."

Jerome A. Hilger* is an E.N.T. specialist in St. Paul, and teaches at the Medical School. He enjoys outdoor activities and participates in many programs of medical organizations throughout the U. S. as a teacher of short courses in his specialty. He writes, "I would do it again exactly as I have." Jerry is a trustee of the Minnesota Medical Foundation.

Laurence D. Hilger has practiced general surgery for 26 years in St. Paul, and teaches at the Medical School. He enjoys wood working, photography and lives at 1303 Beechwood Place.

Frederick W. Hoffbauer is deceased.

F. C. Hubbert is deceased.

Julian C. Jacobson's address is unknown.

James L. Jaeck has been pathologist and director of laboratories for seven years at St. Nicholas Hospital in Sheboygan, Wis. He teaches at Marquette University and Lakeland College. He writes, "All specialists should have two or three years of general practice first. Preceptorship program in senior year pays off. Graduation from the U. of M. Medical School carries great respect throughout the country, I have found."

P. S. Johnson is deceased.

George D. Kaiser* is a surgeon at the Hines, Ill. V. A. Hospital and teaches at Stritch and the Univ. of Illinois. A son, John, is studying medicine. George writes, "The technical and scientific advances have been fantastic at the University of Minnesota."

George C. Kimmel practices pediatrics at the North East Suburban Pediatric Clinic in Minneapolis, and teaches at the Medical School. He and his wife, Florence, have six children, and live at 3510 Benjamin St. N.E.

*Member, Minnesota Medical Foundation



James L. Jaeck



George D. Kaiser



Clarence J. Kooiker

Clarence J. Kooiker is a USPHS career officer, and is presently medical officer in charge of the Sioux Sanatorium and Outpatient Clinic, Division of Indian Health, in Rapid City, S. Dak. Clarence recalls that he had extreme difficulty staying awake in Dr. Rigler's radiology classes. "But I became a board certified radiologist in 1949!" he comments wryly.

Gilbert L. Lee is a V. A. neuropsychiatrist in Los Angeles, Calif. and has spent "30 years in this field, with government work off and on for many years." Her address is 4962 Angeles Vista Blvd.

Richard N. Leick has been a urologist in St. Paul for 10 years, practicing solo. He lives in West St. Paul, Minn., at 171 W. Mendota Rd., with his wife, Elsa. Their daughter is a University freshman. Like several classmates, Dick has tree farming as an avocation.

Richard J. Lien is a pediatrician in a group practice in St. Paul, and teaches at the U. of M. He enjoys golf, fishing, music and reading and lives at 1514 N. Lexington Pkwy.

Norbert J. Lilleberg's address is 25 W. 4th St., St. Paul, Minn.

Vernon L. Lindberg practices ophthalmology alone in Minneapolis, where he has been since 1940. Vern served on the atomic bomb project in Oak Ridge, Tenn. during military service, and now teaches at the Medical School. He went to India in 1963 as a medical missionary. He has three children and "still feels that medicine is the most exciting profession of all."

Alton E. Lindblom practices ophthalmology alone in Mankato, Minn., where he has been for 16 years. He and his wife, Evelyn, an R. N. graduate of the U. of M., have four children and two grandchildren. Alton writes, "My aim in life is to retire to a tropical country!"

John T. Litchfield, Jr. is director of research for the Lederle Laboratories Division of American Cyanamid Co., and active on the national scene in pharmaceutical committees and activities. He has two children and lives at 39 Dimmig Rd., Saddle River, N. J.



Richard J. Lien



Vernon L. Lindberg



John T. Litchfield

Lois G. Lobb is in the geriatrics division of Patton State Hospital, Calif., where she has been for ten years. She writes, "Having done various types of psychiatry, including private practice, I find geriatrics the newest frontier. My avocation is my life as a tertiary of the Dominican Order."

Stanley W. Lundblad's* address is 825 Nicollet Ave., Minneapolis.

Duncan S. MacKenzie, Jr., has practiced 29 years in Havre, Mont. He is active in the Episcopal Church and enjoys golf, hunting and skiing. He writes, "I enjoy practicing medicine and would do the same thing over again."

George H. Marking* has been in solo general practice since 1936, the last 24 years in Minneapolis. His son, George II, will enter the Medical School this fall. Now in his second year as chief of staff at the Swedish Hospital in Minneapolis, George lives at 4309 Dupont Ave. S.

R. W. Marks is deceased.

William P. Mavrelis* has been a pathologist for 30 years. He's affiliated with the Illinois Central Hospital Association and teaches at Northwestern University, near his residence at 614 South Lombard Ave., Oak Park, Illinois. About Medical School he recalls: "George Fahr was an excellent teacher; also Dr. Litzenberg."

*Member, Minnesota Medical Foundation

James J. McNearney* is in general practice in Tulare, Calif., where he has spent 20 years. He enjoys the "challenge of general practice" and "remembers Medical School research projects under Dr. Ray Bieter."



James J. McNearney

Emma Mickelsen Fronk's address is 4508 W. 44th St., Minneapolis.

Theodore P. Mollers works as an adjudicate at the Minneapolis V.A. Hospital and previously operated an 11 bed hospital in Soudan, Minn. for 16 years. He believes medicine is still "a rapidly changing, progressive, useful and rewarding service to mankind."

W. F. Muir is deceased.

Frank D. Naegeli's* address is 20 4th Ave. S. W., Minot, N. D.

Kenneth L. Nelson is administrator of health services at Texas A&M University Hospital. He formerly was a GP in Warroad, Minn.

L. J. Nelson is deceased.

Curtis B. Nessa's address is 602 N. 3rd St., Burlington, Ia.

Harold H. Noran* is senior member and founder of the Minneapolis Clinic of Psychiatry and Neurology, and teaches at Hennepin County General Hospital. Harold has three children; one son in medical school in Ireland, and another, a junior at the U. of M. Medical School. The Norans live at 4502 Golf Terr.

N. T. Norris is deceased.

Louis J. Noun has been engaged in solo allergy practice since 1938 in Des Moines, Ia. Louis has 19 year old twins, a boy and girl, and finds "my practice fascinating. The pace has accelerated tremendously, as have advances in medicine."

Charles J. Nuebel specializes in chest diseases at the V. A. Hospital in Seal Beach, Calif., where he has been for six years. He reports his practice "extremely satisfying."

Louis Odessky's* address is 75-51 180th St., Flushing, N. Y.

Harry A. Palmer has been a GP for 30 years in Blackduck, Minn. His son, David, will enter the Medical School this fall. Harry writes, "I believe there is a definite place for a 'family doctor' and commend the University for interest in this aspect." He plans to retire within the next five years.

*Member, Minnesota Medical Foundation

John A. Paulson was a GP for five years before entering anesthesiology practice in Rochester, Minn. at the Mayo Clinic in 1942. He has two children at home.

Robert B. Potter* has been in solo general practice for 29 years, the last two in Minneapolis. He is active in the Academy of General Practice of which he is a past president, and is editor of *Medical Diggings*, its publication. Bob lives at 4720 Dupont Ave. S.

Sidney C. Pratt* spent 27 years in surgery and obstetrics before beginning a new career in 1966 with the Montana State Board of Health, moving to Helena from Miles City. Sid was president of the state medical association and is an A.M.A. delegate. He is married and has a daughter who is a nurse. Sid says: "Medicine and physicians can survive (the social changes) if we help direct the changes into proper channels. In other words, don't give up!"

E. Danford Quick has practiced at Loma Linda University Medical School. He writes: "I would do it again and I am not pessimistic about the future of medicine. It will be different, no doubt, but very interesting."

Henry R. Ransom* has been a GP for 29 years, 21 at the Osseo, Minn., Clinic, with classmate **T. J. Bloedel**. Henry has a son, Bruce, who will enter Medical School in St. Louis this fall, and three other children.

Paul Reed is an internist and co-founder of the East Range Clinic, Virginia, Minn., where he has practiced for 15 years. He and his wife, Rose, live in nearby Britt, Minn. They have six children.

F. L. Richardson is deceased.

Paul F. W. Rick* has been in general practice since graduation, and in St. Paul since 1946. His address is 1910 Pinehurst.

Frank J. Rigos* has practiced radiology for 23 years and is with a five-man group in Tacoma, Wash. He is the father of six children, enjoys big game hunting, skiing, and raising orchids, and party politics.

H. E. Rokala is deceased.

Howard D. Rolig* has been in solo general practice for 29 years, 10 in West St. Paul, Minn. He has four daughters and two grandchildren, and lives at 775 Hilltop Court, Mendota Heights.

Robert T. St. Clair is in solo ophthalmology practice in Visalia, Calif. for nine years. His address is 1610 W. Myrtle.

*Member, Minnesota Medical Foundation

Samuel T. Sandell is medical coordinator of the Northern Peninsula Tuberculosis Control Center in Hancock, Mich. He has fought TB on the staff of four other tuberculosis sanitoriums in the region, and "had two bouts myself." He remembers the "hard work, great depression, and many happy associations" of Medical School.

J. G. Sawyer is deceased.

N. R. Schneidman is deceased.

John W. Schubert has been in solo general practice for 31 years, 22 years in Lewistown, Mont. He has a son in pre-med at Stanford University and five other children.

E. Robert Schwartz* is in general practice in Minneapolis with Donald B. Frane (Med. '37) and Richard E. Streu (Med. '60). A son, Melvin, will graduate with the class of '67 at the Medical School. Bob writes, "Still enjoy every minute of caring for patients, but not all the paper work."

James F. Shandorf* practices OB-GYN with a group in Minneapolis, and teaches at Hennepin County General Hospital. He has three children and lives at 4420 Fremont Ave. S.

Jesse Shapiro says his general practice since 1946 in the San Fernando Valley, Sherman Oaks, Calif., has been "very pleasant and rewarding." During World War II he was a pathologist with the Army. He and his wife, Gertrude, have two sons, and live at 15903 Woodvale Rd., Encino.

John S. Siegel* has been in solo general practice for 30 years in Virginia, Minn. He has three children and enjoys fishing and boating in his leisure time.



Samuel T. Sandell



John S. Siegel



Ambrose E. Sprafka

Baxter A. Smith* practices urology with two others in Minneapolis, is chief of the division of urology at Hennepin County

*Member, Minnesota Medical Foundation

General Hospital, and teaches at the Medical School. He enjoys the outdoors and "growing orchids with the aid of a small greenhouse." He lives at 4603 Edina Blvd.

Frederick A. Smith* has had 30 years in anesthesiology and is presently chief at the Dayton, O. V. A. Hospital. He has three daughters and two grandchildren and enjoys the study of religion, American history and firearms. Fred's father is Dr. Frederick L. Smith (Med. '06), Rochester, Minn.

Stanley C. Smith has practiced ophthalmology alone since 1947 in Ft. Worth, Tex. He has two children and lives at 3916 Wayburn Dr.

Ambrose E. Sprafka has been a GP for 29 years in Detroit Lakes, Minn. He has five children and enjoys reading, gardening and duck hunting, and has admired the "advances in the field of endocrinology," and the memories of Dr. Boyden's teaching."

Delph T. Stromgren has been in solo general practice since 1937, the last 22 years in Minneapolis. He has three children and writes, "General practice is still an indispensable field of medicine." His address is 5824 Oakland Ave.

Nere J. Sundet* has practiced general medicine at the Kadoka, S. Dak. Clinic since 1939. Single, Nere is active in medical and civic affairs and has been alderman and mayor of Kadoka for the past seven years, as well as on the Board of Trustees of Concordia College in Moorhead, Minn. He writes, "More has been learned in the last 30 years than in all previous medical times and if one doesn't keep up, he is woefully inadequate to practice medicine."

Jerome D. Textor* practices at the Anoka Minn. State Hospital.

Margaret Thomas McLennan is director of the cytology laboratory and research associate in OB-GYN. at the Stanford University Medical Center. She is married to Charles E. McLennan (Med. '34) who is professor of OB-GYN at Stanford. The McLennans' son, James, will graduate from Harvard Medical School in June and intern at the University of Minnesota Hospitals. Their address is 701 Tennyson Ave., Palo Alto.

Desmond M. Thysell has been in general practice nearly 30 years, the last five in Minneapolis. He has two children and two grandchildren, and writes, "I haven't any regrets; many happy years." His address is 3055 Arthur St. N. E.

John A. Tweedy* has been in general practice since graduation in Winona, Minn. He has three sons and three daughters

*Member, Minnesota Medical Foundation



Nere J. Sundet



M. T. McLennan



Desmond M. Thysell

and writes, "Three years on the Texas Panhandle have made me the most appreciative and dedicated Mississippi river rat in southeastern Minnesota."

Richard L. Varco* is professor of surgery at the Medical School, and a trustee of the Minnesota Medical Foundation. He lives at 420 N. Mississippi Blvd., St. Paul, Minn.

Paul M. Vickers* practices proctology in Oklahoma City, Okla., and is an associate professor of surgery at the Oklahoma University School of Medicine. He has four children and two grandchildren, and enjoys golf and fishing.

William L. Wallace is deceased.

Thomas G. Wellman* has been in general practice since graduation, the last ten years in Clinton, Ia. He has two children in college, and lives at 1355 Caroline.

Gilbert P. Wenzel* has been in general practice for 30 years with the Rice Street Clinic in St. Paul. He writes, "Have discontinued private patient care, working only in Bethesda Hospital in St. Paul. Began second career as vice president and part owner of the Capitol City State Bank."

Richard A. Whitney has been in solo general practice for 30 years, the last 15 in Forsyth, Mont. He writes that he is "a duplicate bridge addict. I attend every tournament I can."

Theodore S. Wittels is in family practice in Tucson, Ariz. He has three daughters and the family enjoys "travel to other countries, meeting other peoples, and striving for universal brotherhood." They live at 3227 West Broadway.

Robert Woodruff* practices general surgery alone in Denver, Colo. and teaches at the University of Colorado. His address is 3535 Belcaro Dr.

C. B. Young is deceased.

*Member, Minnesota Medical Foundation

Medical Teaching

Medicine's Primary Data and the Primary Physician*

Richard M. Magraw, M.D.†

"Man ought not to investigate things from words, but words from things; for things are not made for the sake of words but rather words for things." —DIOGENES

Much of the study that all of us do is a matter of studying words rather than Diogenes' "things." Thus in medicine we study textbooks or attend conferences and rounds, in which words about things are our chief means of acquiring information and thinking. We are adding to our storage background. In this way we become so immersed in secondary data (i.e., data moved one or more steps up the ladder of abstraction) and so accommodated to them that we may fail to recognize the primary data of clinical medicine when we see it. This is particularly evident in the approach of medical students to patients. They tend to accept as valid only that data from patients which makes sense to them and which corroborates the "words" textbooks have taught them, even though the language of textbooks is not the language of experience.

Primary data:

It is axiomatic in treating patients, however, that we derive our primary data from the patient himself. We get them from (1) what he tells us in word or non-verbal behavior, (2) what we perceive by examining him directly through our own senses in the physical examination, and (3) what we can determine indirectly through laboratory and X-ray examinations, etc. Generally, what the patient tells us directly in the medical history is the most important source of data. Studies show that 80-85% of our clinical data are derived in this way.

This is, of course, not a fixed or unvarying proportion. Not only is there variation from one physician to another in the

*From a report to the Staff Meeting of University Hospitals on May 5, 1967

†Professor of Psychiatry and Internal Medicine; Director, Comprehensive Clinic Program

way our clinical data is obtained since many of us are relatively more adept in eliciting information than others, but also the relative weightings of data from these various sources change over a period of time in all of clinical medicine.

Despite its prominent position in medical diagnosis the process of history-taking has not been extensively studied. Also there has been little experimentation regarding instructional techniques or studies of their effectiveness with students. However, we have been studying this process and attempting to improve our techniques in it for 10 years at the University.

During most of this time we have used audio tape recording of history-taking followed by a series of repeated playbacks for analysis and then for instruction. The recordings were made at the time patient and doctor (or student doctor) first met and medical care began. We used an unobtrusive but unconcealed microphone. Both patient and doctor are aware of the recording and patient gives written authorization of it in advance. Many hundreds of such recordings have been made, analyzed and utilized for instruction. There are parts of the analysis which can be quantified (counted) as we have reported here and elsewhere but for purposes of instruction we have relied on a typed running critique timed to the interview itself by using the readings of the tape recorder counter which is synchronized with the recording of the interview. During 1966 we began to use a process of video tape recordings, thus adding visual reproduction to the sound recording. This change has resulted in a "quantum jump" in both the data available and in the effectiveness and persuasiveness of the instruction.

Optimally we would like to get several recordings on each of our senior students. Students do this on a voluntary basis and a good number avoid it. We have been recording histories for 11 months and since the first of the year we have been taping three histories a week. They are reviewed with the student doctor individually and if the student willingly assents, may be reviewed with the class.

Eliciting data from the patient is sometimes regarded as an obvious process, at times tedious and generally lacking in exactness or reliability. We hope these recordings help our students to a different view. We expect them to bring their skills in eliciting "hard" primary data to a professional level. Specifically we expect them (1) to recognize this as an area of study embodying learnable not merely intuitive knowledge and skills; (2) to begin to acquire the "sets" or storage background of information they will need about types of persons, types of reactions to illness, and types of life situations they will encounter in patients; (3) to recognize the part the physician plays

in catalyzing or blocking information from the patient, (video tape experience provides a vivid objective confrontation with their professional self); and (4) to perceive and understand the negotiation between doctor and patient as to what the trouble is and what the medical contract will be about.

Playbacks of brief video tape segments of the medical history interviews amply demonstrate the students' skills and errors in eliciting information.

The primary physician:

In our increasingly complicated apparatus for medical care and education it is hard to keep the patient in the foreground or even visible at all. It is no exaggeration to state that we are at this moment in medical care and in medical education, in a time of crisis of decision making. As a society we are rather rapidly evolving the patterns of medical care by legislative decision and by social usage. Deriving from these decisions in medical care, we in medical schools are also pondering the mission of modern medical education and how to carry it out.

We are engaged in a renegotiation of the contract between our profession and the society it serves. As far as society is concerned the renegotiation involves issues of comprehensiveness, availability, individualized adaptation and personalized application of medical care. However from the standpoint of the medical profession or the health professions generally, and particularly the teachers in these areas, the central issue is a matter of division of professional labor. Most of the discussions we are having in medical schools these days center on these issues. We are trying to decide, for example, what kind of doctors we need and what kind of training they need.

The division of labor in modern medicine is characterized by development of ever greater expertness in ever more narrow segments of medicine. The process of more and more refined specialization is a natural one and will inevitably progress.

However this division of labor within medicine is ill suited for dealing with the primary data. It "prefers" its "clinical material" pre-sorted or pre-processed, after which the specialty apparatus works best. But to provide the comprehensive individually adapted care which the public wants and needs, the vertically oriented compartmentalized specialties of medicine require a horizontal integrative component. Yet the skills and knowledge required for expertness in depth are demanding in themselves. As Romano said, "A scientist's first (professional) loyalty must be to his material." The clinical material of the specialist in depth is inevitably only a part of the socio-biologic unit we have seen. Regardless of professional training and

personal characteristics the specialist in depth cannot afford involvement with the primary data at other than a limited level. It is not his first concern. It must therefore be avocational. What we lack in our medical apparatus today is a sufficient number of graduates whose professional commitment is to the unprocessed, unrefined patient and whose clinical material is centered in the primary data.

We have been privileged to use rather elaborate equipment obtained from the Department of Psychiatry, Drs. Titus Belleville and Richard Anderson. In addition Dr. Belleville produced the first tapes of medical histories for us. The generosity of Dr. Belleville and the Department of Psychiatry are the principal factors which have made this possible.

Anatomy

Cytodifferentiation in Embryonic Liver*

Richard L. Wood, Ph.D.†

Electron microscope studies of cytodifferentiation in developing rat liver show that intrahepatic biliary channels arise independently from the original hepatic diverticulum. Hepatic cells rearrange topographically in the process of forming definitive canaliculi and terminal bile ducts. The early duct cells develop by direct transformation of hepatic cells located adjacent to portal connective tissue. During the period of cellular rearrangement, peribiliary dense bodies appear in close association with a well developed Golgi apparatus. These bodies contain acid phosphatase from their earliest appearance and the activity of this enzyme is high in the Golgi material before significant numbers of dense bodies are present. The writer interprets this as evidence that peribiliary dense bodies are formed in the Golgi apparatus and that they should be regarded as primary lysosomes, at least in the fetus. These findings are relevant to the understanding of (1) liver development and the occurrence of congenital defects in intrahepatic biliary channels, (2) of cellular relationships during liver pathology and regeneration, and (3) of broad considerations of origin and function of lysosomes.

*From a report to the Staff Meeting of University Hospitals on May 26, 1967

†Associate Professor, Department of Anatomy

Problems of cytodifferentiation are particularly well suited for investigation with electron microscopy since visualization of many of the morphological changes requires greater resolution than light optical systems can provide. In developing mammalian liver the first intrahepatic biliary spaces have been described as lumina in a tubular arrangement of developing hepatic cells. My studies show that this concept is incorrect and that canaliculi first develop as specializations on the surfaces of two apposed hepatic cells. A saccular and tubular configuration develops secondarily.

Proliferation of bile ductules is a frequent complication of liver pathology. It has long been contested whether or not hepatic cells contribute to duct cell proliferation. Many investigators believe that existing duct cells are the only source of the proliferating cells and there is considerable evidence to support this view. The fact that hepatic cells de-differentiate to form duct cells embryonically supports the possibility that such a phenomenon might occur in severe pathological conditions. It must be stressed, however, that no studies to date demonstrate conclusively that this actually occurs in adult liver.

Peribiliary dense bodies correspond to lysosomes which are characterized biochemically by their content of hydrolytic enzymes. Lysosomes were originally isolated from liver and are now recognized as a normal constituent of most cells. These organelles are known to participate in a great variety of cellular activities relating to intracellular digestion. The origin of lysosomes has not been traced fully in any cell type but it has been hypothesized that the hydrolytic enzymes are synthesized in the endoplasmic reticulum and transferred to the Golgi region of the cell for final packaging or release into preformed vacuoles. If the packets of enzymes are stored prior to participation in hydrolytic activity, the packets are referred to as primary lysosomes. My studies show rather conclusively that in developing liver the Golgi apparatus is involved in lysosome formation. Furthermore, since there is no evidence at present that liver cell lysosomes are involved in hydrolytic activity in the embryo, it seems likely that initial peribiliary dense bodies qualify as primary lysosomes. This is significant because it has been generally accepted that peribiliary dense bodies in adult liver are probably all secondary lysosomes of the residual body category. This may not be so and the writer believes it is important to explore other possibilities for the function of liver lysosomes. It is conceivable that they play an important role in bile formation and secretion since the appearance of these organelles in late fetal life coincides with the establishment of

continuous intrahepatic biliary channels and the appearance of enzymes which are important in bile secretion in the adult.

Anesthesiology

The Effect of Oxygen Tension on the Metabolism of Hexobarbital in the Rat*

James F. Cumming, M.D.*

This study demonstrates that a decreasing arterial oxygen tension is accompanied by a decrease in the rate of biotransformation of hexobarbital in the rat. A change in availability of oxygen to the liver takes place when blood flow or oxygen tension changes. Hence in shock one would expect a drop in oxygen available, and a drop in the rate of hexobarbital biotransformation.

Male rats weighing between 250 and 350 grams, supplied by Holtzman & Co., Madison, Wis., were used in all experiments outlined here.

The isolated, continuously perfused liver of the rat is used, with perfusion through the portal vein. Perfusion rate is kept constant at 1 ml. of perfusate per minute per gram of wet liver. Temperature, volume of perfusate and perfusion pressure are kept constant. The perfusate is a mixture of rat blood and 0.9% saline, in a 3-to-1 ratio. The oxygen tension of the inflow (or arterial) perfusate is kept constant for each experiment, but varies between experiments. After 30 minutes equilibration, hexobarbital (67 micromoles per 100 ml. of perfusate) is added. At five minute intervals over a total time of 20 minutes, samples of perfusate taken from the arterial side are analyzed for hexobarbital concentration and for oxygen tension. The time for disappearance of one half the original hexobarbital is estimated from these hexobarbital concentrations. This $T_{1/2}$ is used for a comparison of rates of biotransformation at different oxygen tensions.

*From a report to the Staff Meeting of University Hospitals, May 19, 1967

†Research Trainee, Department of Anesthesiology

These experiments show that with oxygen tensions in the in-flow perfusate between 20 and 45 mm. of mercury, there is a linear decrease in the hexobarbital T-½. That is, the rate of biotransformation of the drug increases linearly with increasing oxygen tensions within these limits. An apparent maximum rate is reached at approximately 45 mm. oxygen tension, as no further increase occurs at least to an oxygen tension of 370 mm.

These experiments were repeated using rats pretreated daily for four days with phenobarbital 40 mgm. per kgm. of rat, intraperitoneally. The animals are then used on the fifth day. Phenobarbital pretreatment is known to increase the rate of biotransformation of a number of drugs, including hexobarbital. The increase in rate is paralleled by an increase in cytochrome P450, a pigment of the microsomal electron transfer chain known to be involved in the metabolism of drugs.

Using livers from treated animals, a linear decrease in hexobarbital T-½ is again found at oxygen tensions between 20 and 45 mm. Above this tension, there is no further change in rate of biotransformation. However, the rate of biotransformation by phenobarbital pretreated animals is about two times that of the normal at any given oxygen tension.

Whole animals are used in another set of experiments. Rats are placed in polyethylene bags into which flow atmospheres with varying percentages of oxygen in nitrogen. After being in a particular atmosphere for 30 minutes, each rat is given an intraperitoneal injection of 45 micromoles of hexobarbital per 100 grams of rat. This injection is made through the polyethylene bag while the animal remains in the experimental atmosphere. Thirty minutes after the injection of hexobarbital, a left ventricular puncture is made, again through the polyethylene bag. A blood sample is drawn, and analyzed for hexobarbital concentration and oxygen tension. A comparison can now be made of the hexobarbital level achieved at 30 minutes in the presence of different arterial oxygen tensions.

These experiments give results similar to those seen in the liver perfusion experiments. Normal animals show a decreasing blood level of hexobarbital at 30 minutes, with increasing arterial oxygen tensions between 30 and 50 mm. of mercury. Above this tension of arterial oxygen, there is no statistically significant difference between hexobarbital blood levels at 30 minutes. The phenobarbital induced animals show a similar picture. In these, a minimum hexobarbital level is achieved with an oxygen tension of 45 mm. As in the perfused liver, the rate of metabolism is about two times greater in the induced animal. A comparison of the cytochrome P450 level in the normal and

phenobarbital induced animals of this weight range shows an increase of 2.7 times in the induced animal.

Thus, in both the isolated perfused liver of the rat, and in the whole rat, a linear relationship seems to exist between oxygen tension and hexobarbital metabolism when the oxygen tension ranges between 20 and 50 mm. of mercury. The ability of induced animals to transform hexobarbital at a faster rate than the normal could be explained on the basis of more cytochrome P450 being present in the former. The fact that a maximum reaction velocity is reached at about the same oxygen tension in both types of animals could indicate that the affinity of the cytochrome P450 for oxygen is the same in both normal and induced animals.

Medical School News

A gift of \$1.5 million was recently given to the University of Minnesota by Mr. Jay Phillips, Minneapolis businessman and philanthropist. The funds will be used to build a research center serving several clinical departments of the Medical School.

The building, to be part of the Medical Center's \$53 million expansion plan, will be called the Jay Phillips-Owen H. Wangenstein Research Center. Its proposed location is adjacent to the Diehl Hall Library building.

Mr. Phillips' gift will enable the University to obtain matching U.S.P.H.S. funds for erection of a \$3 million facility to house badly needed research laboratories. The research will be closely related to the clinical care and treatment of sick patients.

Dr. Robert B. Howard, Dean of Medical Sciences, said: "Mr. Phillips' wonderful gift is an excellent example of how private funds can help develop the necessary physical facilities of the University, and, as a consequence, save the State of Minnesota a great deal of money."

UNIVERSITY HOSPITALS

Thomas F. Jones, 31, was recently appointed assistant to the director of University Hospitals, John H. Westerman. Jones will be responsible for hospital administration in several areas, particularly in personnel and pharmacy. He is a native of Wisconsin and will receive the M.H.A. degree from the University of Minnesota this spring.

PSYCHIATRY and NEUROLOGY

Dr. Donald W. Hastings this month announced his decision to retire as head of the Department of Psychiatry and Neurology, which he has headed for nearly 22 years. He plans to step down when a successor is chosen.

In a letter to colleagues, Dr. Hastings stated his intention to remain on the faculty as a professor in the department and to "spend the years that remain in teaching, clinical research, and writing." He wrote: "I believe it is in the Department's best welfare to bring in a younger man to assume the heavy administrative burdens which the operation of large department imposes."

Dr. Hastings said he recommended and urged that the Division of Neurology be given departmental status by the University.

ORTHOPEDIC SURGERY

Dr. John H. Moe, Director, announced: "The Division is grateful for the generosity of Dr. Edward T. Evans, professor emeritus, who has donated his orthopedic library to the Division. This will constitute the nucleus for an orthopedic residents' reference library, to be known as the Edward T. Evans Library."

INTERNAL MEDICINE

Dr. Eugene A. Stead, Jr. of Duke University served as the 1967 *John C. and Miriam Cornelius Visiting Professor* at the Medical School during the week of April 10-14. An innovator and leader in medical education, Dr. Stead delivered lectures, made rounds, and participated in numerous teaching conferences under a program sponsored annually through the Minnesota Medical Foundation by gifts of Mr. and Mrs. J. C. Cornelius of Minneapolis.

SCHOOL OF PUBLIC HEALTH

Dr. Gaylord W. Anderson, Mayo professor and head of the School, was recently honored by the Republic of Peru. He received the "Medal of Commander of the Order of Hipolito Unanue," in recognition of meritorious service to that nation in the field of public health. The citation read in part: "In consideration of the fact that Dr. Gaylord W. Anderson, through his professional career . . . contributed to the professional preparation of the medical profession of Peru and . . . establishment of closer institutional ties and friendship between Peru and the U.S."

NEUROLOGY

Dr. A. B. Baker, professor and director, was among six faculty professors honored at University of Minnesota Cap and Gown Day ceremonies May 24th. Each received a citation and honorarium of \$1,000.00 for "outstanding contributions to undergraduate education." The citations are sponsored by the Standard Oil (Ind.) Foundation and are identified as the first Horace T. Morse Awards, honoring the late dean of the University's General College.

HOSPITAL ADMINISTRATION

Bright M. Dornblaser, director of Franklin County Public Hospital in Greenfield, Mass., has been named new director of the Division of Hospital Administration. A native of Minneapolis, Dornblaser is a graduate of the University and formerly taught in the hospital administration program here. He is 42 years old and will take his new post August 1, 1967.

Student News



Sarah Nunnelley (Med. '67) is shown assisting Dr. Anthony Barker at the Charles Johnson Hospital, Nqutu, Zululand during a recent period of elective study. Several students from various medical schools, including Minnesota, have taken elective study with Dr. Barker, a British surgeon and medical missionary.

Alumni Notes

Herb L. Huffington Elected to University Board of Regents

Dr. Herb L. Huffington (Med. '51), Waterville, Minn., is presently serving on the Board of Regents of the University of Minnesota. He was elected a Regent by the Minnesota State Legislature this Spring to represent Minnesota's Second Congressional District for a six-year term.

Born in Illinois, Dr. Huffington grew up in Mankato. He is only the second undergraduate alumnus of the Medical School to be elected a Regent in University history. The late Dr. O. J. Hagen (Med. '06), Moorhead, Minn., served as a Regent of the University during the years 1931-37.

Dr. Huffington is president of the Minnesota Academy of General Practice, former executive director of the organization, and is active in national affairs of the Academy. He received a B.S. degree from Northwestern University in 1943 and served in the Navy during World War II.

Dr. Huffington has been in solo general practice in Waterville, Minn. since 1953. He is married and has two sons and two daughters.



Herb L. Huffington

REMEMBER THE
MINNESOTA MEDICAL FOUNDATION
IN YOUR WILL

Letters

The Editor:

In the write-up of Our Senior Alumni, April issue, it was stated that I was in practice 36 years. It should have been 63 years.

I came to Redwood Falls in 1904 and have been here ever since. Am a real horse and buggy doctor.

W. A. Brand (Med. '04)
Redwood Falls, Minn.

The Editor:

Congratulations on the very fine review of the early graduates of the Medical School (MED, BULL. April, 1967). I had long anticipated some such report and now it is here.

In the interest of accuracy, especially for the genealogists, I think I should mention an error made on p. 228. Statement: "His wife, Ruth Lusk, was first cousin of the railroad builder James J. Hill." This should read "Dr. Ramsey's mother was first cousin of . . ."

This error was made, I am sure, in a misquote from Dr. Robert Rosenthal's biography of Dr. Ramsey in the Journal-Lancet of July, 1962 . . .

An old insurance doctor was asked what he deemed the most important factor in living to be very old. After consideration he said, "Well, I think the most important thing is to be careful in choosing your grandparents."

With deep appreciation of your generous appraisal of "The Survivors."

Walter R. Ramsey (Med. '96)
St. Paul, Minn.

Alumni Deaths

◆ 1905

Dr. Herbert V. King, Morgantown, W. Va. Died April 30, 1967. He was 84 and one of the oldest living graduates of the Medical School. His first practice was in government service on an Arizona Indian reservation. Later he was a GP in Minnesota and Wisconsin and subsequently became an ENT specialist in West Virginia. Dr. King was among those attending the 50th Reunion of the Class of 1905 in 1955.

◆ 1918

Dr. Carl G. Swendseen, Pompano Beach, Fla. Died April 9, 1967, age 72 years. He practiced ENT in Minneapolis many years and had moved to Florida about 10 years ago.

◆ 1919

Dr. Swan Ericson, Los Angeles, Calif. Died May 17, 1967 at the age of 77. He had retired to California after practicing 31 years in LeSueur, Minn.

◆ 1919

Dr. George E. McGeary, Ft. Myers, Fla. Died May 2, 1967 of cancer. He had retired four years ago from EENT practice in Minneapolis and moved to Florida. Dr. McGeary was an outstanding varsity athlete during undergraduate days at the University of Minnesota.

◆ 1927

Dr. Arthur C. Kerkhof, Minneapolis, Minn. Died May 3, 1967. Sixty three years old, he was stricken by a coronary attack at the staff meeting of St. Barnabas Hospital and died shortly thereafter. Dr. Kerkhof was among the nation's outstanding cardiologists. He received the Ph.D in medicine at the University in 1935, and was founder of the MEDICLINICS postgraduate medicine program. He was a trustee of the Minnesota Medical Foundation. Memorials may be sent to the *Arthur C. Kerkhof Memorial Scholarship Fund, c/o Minnesota Medical Foundation, Box 193, University Hospitals, Minneapolis, Minn. 55455*

◆ 1933

Dr. John C. Barton, Riverside, Calif. Died March 15, 1967, at the age of 59 years. He had practiced in Riverside since 1949, with special interest in research.

◆ 1937

Dr. John A. Hardiman, Portland, Ore. Died December 28, 1967, age 53, of arteriosclerosis and coronary insufficiency.

MEMORIALS

The Minnesota Medical Foundation acknowledges with gratitude recent contributions made in memory of:

Mrs. John W. Abbey	Mrs. Gunnar Peterson
Mrs. May Backer	Dr. Harold J. Rothschild
Mrs. Clara B. Bender	Saul Rykoff
Dr. Arthur C. Kerkhof	Mrs. Magdalene Schik
Arthur D. McGuire	George A. Smith